

Claims

1. An inkjet device for containing, degassing and supplying ink, comprising:
5 a container for the ink;
means for supplying a gas to the container to bubble through the ink;
a controller for controlling at least the gas supplying means to operate in at least two modes, including:
10 a degassing mode wherein the pressure in the container is at a degassing pressure and wherein the gas supplying means is controlled to supply the gas at a pressure above the degassing pressure to bubble through the ink; and an ink supplying mode wherein the pressure in the container is at an ink delivery pressure.
2. Apparatus according to Claim 1, wherein the container is arranged for supplying ink to
15 a printhead.
3. Apparatus according to Claim 1 or Claim 2, further comprising a printhead remote from the container.
- 20 4. Apparatus according to any preceding claim, further comprising means for setting the pressure in the container; and wherein the controller is arranged to control the pressure setting means to set the pressure in the container to the degassing pressure or ink delivery pressure according to the mode.
- 25 5. Apparatus according to any preceding claim, wherein the temperature and pressure in the degassing mode and the gas solubility are selected so that the equilibrium mass proportion of dissolved gas in the ink in the degassing mode is no more than 80% of the saturation mass proportion at the ink delivery pressure and temperature.
- 30 6. Apparatus according to Claim 5, wherein the equilibrium mass proportion of dissolved gas in the ink in the degassing mode is no more than 60% of the saturation mass proportion at the ink delivery pressure and temperature.

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7. Apparatus according to Claim 4, wherein the degassing pressure is lower than the ink delivery pressure.
8. Apparatus according to any preceding claim, further comprising means for setting the temperature in the container to an elevated degassing temperature.
9. Apparatus according to Claim 8, further comprising means for cooling the ink to an ink delivery temperature below the degassing temperature.
10. Apparatus according to Claim 9, wherein the cooling means is outside the container.
11. Apparatus according to any preceding claim, further comprising at least one printhead and a local ink refill system associated with the or each printhead; wherein the container is arranged to supply ink to the at least one local ink refill system in the ink supplying mode.
12. Apparatus according to any preceding claim, wherein the degassing pressure is lower than atmospheric pressure, and the gas supplying means is arranged to supply gas, preferably air, substantially at atmospheric pressure.
13. Apparatus according to any preceding claim, wherein the degassing pressure is below 900mbar.
14. Apparatus according to any preceding claim, wherein the degassing pressure is below 600mbar.
15. Apparatus according to any of Claims 4 to 14, further comprising a bubble bursting means between the ink container and the pressure setting means.
16. Apparatus according to any preceding claim wherein the gas supplying means is arranged to supply a gas less soluble in the ink than air.
17. Apparatus according to Claim 16 wherein the gas is Helium.

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18. Apparatus according to any preceding claim, wherein the gas supplying means is arranged to supply gas to bubble through a major portion of the ink.
19. Apparatus according to any preceding claim, wherein the gas supplying means includes
5 an inlet adjacent the base of the container so that gas introduced bubbles upwardly through the container.
20. Apparatus according to any preceding claim, wherein the ink container has a greater height than at least one of its horizontal dimensions.
- 10 21. Apparatus according to any preceding claim, wherein the ink container is generally columnar having a greater height than any horizontal dimension.
22. Printing apparatus comprising a plurality of inkjet devices, each as described in any
15 preceding claim.
23. Apparatus according to Claim 22, wherein each inkjet device contains ink of a different colour.
- 20 24. Apparatus according to any preceding claim, further comprising at least one filter positioned to filter gas flowing from the gas supplying means to the ink container.
25. Apparatus according to Claim 24, further comprising restriction means for restricting the flow of gas from the gas supplying means to the ink container.
- 25 26. Apparatus according to Claim 25, wherein the restriction means is provided by the at least one filter.
27. Apparatus substantially as herein described with reference to the accompanying drawings.
- 30 28. A method for degassing ink in a container in an inkjet device, comprising controlling the inkjet device between two modes of operation, including: a degassing mode, in which the

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pressure in the container is at a degassing pressure and gas is supplied by gas supplying means at a pressure above the degassing pressure to bubble through the ink; and an ink supplying mode, in which the pressure in the container is at an ink delivery pressure.

5 29. A method according to Claim 28, further comprising setting the pressure-in the container to the degassing pressure or the ink delivery pressure depending on the mode.

30. A method according to Claim 29, wherein the degassing pressure is lower than the ink delivery pressure.

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31. A method according to any of Claims 26 to 28, further comprising setting the temperature in the container to an elevated degassing temperature.

15 32. A method according to Claim 31, further comprising cooling the ink to an ink delivery temperature below the degassing temperature.

33. A method according to Claim 32, wherein cooling is performed outside the container.

20 34. A method according to any of Claims 28 to 33, wherein the degassing pressure is lower than atmospheric pressure and the gas supplied is at atmospheric pressure, and preferably wherein the gas is air.

35. A method according to any of Claims 28 to 34, wherein the gas supplied is less soluble in the ink than air.

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